U. S. DEPARTMENT OF COMMERCE

CIVIL AERONAUTICS JOURNAL

ISSUED TWICE MONTHLY BY THE

CIVIL AERONAUTICS ADMINISTRATION

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Civil Aeronautics Administration Gets New Laboratory Plane

Airliner-Type DC–3, Twin-Motored, Strictly of "Workhorse" Variety

A new, twin-motored, airline laboratory plane was added March 21 to the fleet of the Civil Aeronautics Administration.

Gen. Donald H. Connolly, Administrator, stated that the plane, a Douglas DC–3, powered with two 1,200-horsepower engines, is strictly of the "workhorse" variety, with all the familiar trimmings of passenger comfort removed, and all its space devoted to crew, observers, and test equipment. One of its principal jobs will be in keeping the staff of C. A. A. airline and personnel inspectors abreast of, and, if possible, ahead of developments of all kinds in the rapidly expanding aviation field. Systematic refreshing of these inspectors is an essential part of the service, Administrator Connolly explained, since they are required regularly to examine and pass upon the qualifications of airline pilots.

"These airline pilots are probably the best group of pilots in the world," the Administrator said, "and our inspectors have to be good enough to test them. This requires periodic, specialized, and concentrated training of the inspectors."

In its inspection work, the plane will be a flying laboratory, with accommodations for a crew of 3 and 12 inspectors as observers aboard, listening in on the same interphone system. For high-altitude work, each place in the plane has an oxygen outlet and masks are provided. Even now, while the plane is going through routine acceptance tests, C. A. A. inspectors are exploring the usefulness of certain new navigation instruments in its equipment.

This is the first airplane of this size and type to be operated by the C. A. A. Since it is typical of current airline equipment, it will be used for objective flights to obtain data for regulatory purposes, to standardize test procedures, and give manufacturers and airline operators opportunity to observe and benefit by carefully engineered tests. When the acceptance tests are complete, the plane will be routed to the various regions of the C. A. A. in connection with the routine "flight proficiency" tests given all airline pilots. This initial tour starts April 10, will cover most of the 30,500 miles of airways in the country, and will give all airline operators opportunity to see the advanced navigating devices installed in the plane at their home bases. The plane will be based at the new C. A. A. Standardization Center at Houston, Tex.

Two principal radio developments are incorporated in the plane's instrument equipment. The first is a general simplification of controls by which the number of switches on the master radio control panel is reduced from an average of 18 in current transport planes to a total of 5.

The other is a dual automatic radio direction finder, a development of the last 3 years by radio engineers of the C. A. A. and three manufacturers in collaboration. This instrument is of especial interest because it presages navigation in the entire "ocean of air" rather than in the relatively narrow channels maintained by radio directional beams.

(*See* LAB PLANE, *page 103*)

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Schools Give Credit For C. P. T. Training

Scholastic credit for successful completion of the Civil Aeronautics Administration's Civilian Pilot Training is being offered by 362 colleges and universities, it was announced by Robert H. Hinckley, Assistant Secretary of Commerce. This is more than one-third of the total number of schools participating in the program. (At the present time there are 945 college and 203 non-college training centers participating.)

"We are pleased beyond measure," said Mr. Hinckley, "that these schools have come to accept our flight and ground courses on an academic basis. It definitely establishes the C. P. T. P. as educational, which was our idea in originating it. This recognition gives us hope that the study of aviation will soon be introduced not only in our institutions of higher learning but also in our high schools and grade schools."

Mr. Hinckley said that a number of the colleges are making the ruling retroactive in order that students who completed their work last year may have the advantage of the semester credits. He also said that many schools are constructing new buildings and enlarging their laboratory and ground facilities in order to handle the work better and that in some states the educational departments are extending the scholastic

(*See* C. P. T. P., *page 114*)

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Aeronautical Legislation Pending

Following is a listing and a brief summary of proposed aeronautical legislation now pending before the Seventy-seventh Congress:

H. R. 1003—AERONAUTICAL RESEARCH (Randolph); a bill authorizing an appropriation for the construction and equipment at Morgantown, W. Va., of research facilities for aeronautical research; referred to the Committee on Military Affairs.

H. Res. 18—AIR LINE ACCIDENTS (Hinshaw); a resolution providing for a special committee to investigate air-line accidents; referred to the Committee on Rules.

S. 1—CIVIL AERONAUTICS AUTHORITY (McCarran); a bill providing that the Civil Aeronautics Authority shall be an independent establishment of the Government; referred to the Committee on Commerce.

S. 7—AVIATION SALVAGE (McCarran); a bill to enact the Aviation Salvage at Sea Convention into statute law in the United States; referred to the Committee on Commerce.

S. 8—DEVELOPMENT OF AIRCRAFT LANDING AREAS (McCarran); a bill to provide for Federal cooperation with the States in the development of aircraft landing areas adequate to provide for the national defense, the Postal Service, and civil aeronautics; referred to the Committee on Commerce.

S. 17—PROHIBITING EMPLOYMENT OF ALIENS IN AIRCRAFT INDUSTRY (McCarran); a bill prohibiting the employment of aliens within the United States by persons manufacturing aircraft for the Government, and for other purposes; referred to the Committee on the Judiciary.

S. 53—AIRCRAFT SAFETY (Mrs. Caraway); a bill to amend the Civil Aeronautics Act of 1938 to provide additional safety for passengers in aircraft; referred to the Committee on Commerce.

S. Res. 7—COMMITTEE ON CIVIL AVIATION AND AERONAUTICS (McCarran); a resolution amending the rule XXV of the Standing Rules of the Senate by inserting "Committee on Civil Aviation and Aeronautics, to consist of 13 Senators"; referred to the Committee on Rules.

H. J. Res. 51—PROMOTION OF SAFETY IN AIR TRAVEL (Peterson of Florida); a joint resolution for the promotion of safety in air travel, by the construction of uniform identifying land markers; referred to the Committee on Interstate and Foreign Commerce.

S. 290—CIVILIAN GLIDER PILOT TRAINING (McCarran); a bill to establish a Civilian Glider Pilot Training Division in the Civil Aeronautics Authority; referred to the Committee on Commerce.

H. R. 3015—AIR MARKERS (Johns); a bill to provide for Federal cooperation in the construction and reconstruction of air markers, and for other purposes; referred to the Committee on Interstate Commerce.

S. 766—AIRLINE PILOTS' RESERVE (Mead); a bill to establish an Airline Pilots' Reserve, and for other purposes; referred to the Committee on Commerce.

H. R. 3132—DIVISION OF AVIATION EDUCATION (Larrabee); a bill to establish a Division of Aviation Education in the United States Office of Education, Federal Security Agency; referred to the Committee on Education.

H. R. 3259—INDEPENDENT AUTHORITY (Hinshaw); a bill to provide that the Civil Aeronautics Authority shall be an independent establishment of the Government, and for other purposes; referred to the Committee on Interstate and Foreign Commerce.

H. R. 3299—CIVILIAN PILOT GLIDER TRAINING (Cole); a bill to establish a civilian glider pilot training division in the Civil Aeronautics Administration, and for other purposes; referred to the Committee on Interstate and Foreign Commerce.

H. R. 3300—CIVILIAN GLIDER PILOT TRAINING (Fish); a bill to establish a civilian glider pilot training division in the Civil Aeronautics Administration, and for other purposes; referred to the Committee on Interstate and Foreign Commerce.

S. 873—DEFERMENT FROM SELECTIVE SERVICE (McCarran); a bill to amend the Selective Service and Training Act of 1940 to provide for deferring from training and service persons who are receiving instruction in regular courses at certain aeronautical schools; referred to the Committee on Military Affairs.

H. R. 3386—TRAINING OF GLIDER PILOTS (Randolph); a bill to provide for the training of civil glider pilots; referred to the Committee on Interstate and Foreign Commerce.

H. Res. 121—ACCIDENT INVESTIGATION (Randolph); directing the Committee on Interstate and Foreign Commerce to investigate the cause of recent airplane disasters; referred to the Committee on Rules.

H. Res. 122—ACCIDENT INVESTIGATION (Randolph); providing expenses for conducting the investigation authorized by H. Res. 121; referred to the Committee on Accounts.

H. Res. 123—ACCIDENT INVESTIGATION (Mrs. Rogers); creating a special committee of the House of Representatives to investigate the accident of an Eastern Air Line airplane near Atlanta, Ga., February 27, 1941; referred to the Committee on Rules.

H. R. 3755—RE-CREATION OF C. A. A. (Mrs. Rogers); a bill to re-create the Civil Aeronautics Authority; referred to the Committee on Interstate and Foreign Commerce.

H. Res. 124—CIVIL AVIATION (Kee); a resolution to amend rule X to provide for the creation of a Committee on Civil Aviation and Aeronautics; referred to the Committee on Rules.

H. R. 4002—PARACHUTES FOR AIRLINE PASSENGERS (Kramer); a bill requiring persons engaged in air commerce to equip passengers and flying personnel with parachutes, and to use safety devices similar to those required in the case of military and naval aircraft, referred to the Committee on Interstate and Foreign Commerce.

H. R. 4156—WEATHER REPORTING (Bolles); a bill to establish in the state of Minnesota a regional forecasting office of the Weather Bureau; referred to the Committee on Agriculture.

H. R. 4168—WEATHER REPORTING (Youngdahl); a bill to augment and increase the facilities of the meteorological station at Minneapolis-St. Paul, Minn.; referred to the Committee on Agriculture.

H. R. 4192—SECRETARY FOR AIR (Osmers); a bill to establish a Department of Air; referred to the Committee on Expenditures in the Executive Departments.

S. 1260—AVIATION EDUCATION (McCarran); a bill to establish a Division of Aviation Education in the United States Office of Education, Federal Security Agency, and for other purposes; referred to the Committee on Education and Labor.

S. 1317—WEATHER BUREAU (Ball); a bill to provide for the establishment of a district forecast office of the Weather Bureau in Minneapolis, Minn.; referred to the Committee on Commerce.

Legislation Adopted

S. Res. 68—ADMINISTRATIVE PROCEDURE; the resolution authorizing the printing of monographs of Attorney General's Committee on Administrative Procedure embodying the results of the investigations made by it relative to the practices and procedures of the administration of various Government agencies, including the Civil Aeronautics Authority, was agreed to by the Senate (February 6).

H. R. 3325—NAVAL AVIATION; the bill which includes appropriations for the construction of a naval wind tunnel at Carderock, Md., and additional facilities at Naval Air Stations was passed by the House (February 19).

H. Res. 125—AIRLINE ACCIDENTS; the resolution creating a Select Committee to Investigate Airplane Accidents was agreed to by the House (March 6).

S. 840—AVIATION CADET; the bill to create the grade of aviation cadet in the Air Corps, Regular Army, was passed by the Senate (March 10).

H. R. 701—ALLENTOWN AIRPORT CORPORATION; the bill for the relief of the Allentown Airport Corporation was passed by the House (April 1).

RECIPROCAL TRANSIT OF MILITARY AIRCRAFT: an agreement, Executive D, 75th Congress, first session, between the United States of America and Mexico to facilitate the recip-

Committees Named for Aero Advisory Council

The names of members of seven standing committees of the Department of Commerce's Aeronautical Advisory Council were made public recently. The committees follow:

Executive.—Frank Tichenor, Chairman; Milton Knight, Edmund T. Allen, W. A. M. Burden, Casey Jones, Laurence Sharples, Col. John H. Jouett, Thomas A. Morgan, and Dr. Clark Millikan.

Flight Personnel.—Edmund T. Allen, W. A. M. Burden, Milton Knight, Dr. Clark Millikan, and Laurence Sharples.

Industrial Coordination.—Edmund T. Allen, Col. Edgar Gorrell, Col. John H. Jouett, Dr. Clark Millikan, and Merrill C. Meigs.

Airports and Airways.—Maj. John Berry, Guy Gannett, Charles Morris, and Capt. Gill Robb Wilson.

Coordination of Services.—Col. John H. Jouett, Casey Jones, and William Stout.

Ground Personnel. — Casey Jones,, Charles Mattoon, and Capt. Gill Robb Wilson.

Budget Committee.—William Burden, Milton Knight, Thomas A. Morgan, and Capt. Gill Robb Wilson.

New Aeronautical Publications

Among recent Government publications dealing with the subject of aeronautics are the following:

LABOR DEPARTMENT, DIVISION OF LABOR STANDARDS, BULLETIN 43; long-range defense program; outlines procedures for getting apprenticeship programs under way, suggests standards for the training of apprentices, and offers the technical assistance of Government in expanding apprentice training to meet the estimated needs of a long-range defense program. 27 pages. Price 10 cents. Classification number, L 16.3: 43.

LABOR DEPARTMENT, DIVISION OF LABOR STANDARDS; labor and safety on the job in national defense. 12 pages, illustrated. Price 5 cents. Classification number, L 16.2: N 21.

WAR DEPARTMENT, TECHNICAL MANUAL 1–406; aircraft electrical systems. 96 pages, illustrated. Price 15 cents. Classification number, W 1.35: 1–406.

WAR DEPARTMENT, TECHNICAL MANUAL 1–405; aircraft engines. 81 pages, illustrated. Price 15 cents (supersedes TM 2170–13, February 21, 1931). Classification number, W 1.35: 1–405.

NAVY DEPARTMENT, AIR ALMANAC; the object of this volume is to provide in convenient form the astronomical data required for aerial navigation. 240 pages, chart. Price $1 (U. S. Naval Observatory, Nautical Almanac Office). Classification number, N 11.6/3: 941/1.

WAR DEPARTMENT, TECHNICAL MANUAL 1–420; Air Corps; lathes. 94 pages, illustrated. Price 15 cents. Classification number, W 1.35: 1–420.

(*See* PUBLICATIONS, *page 111*)

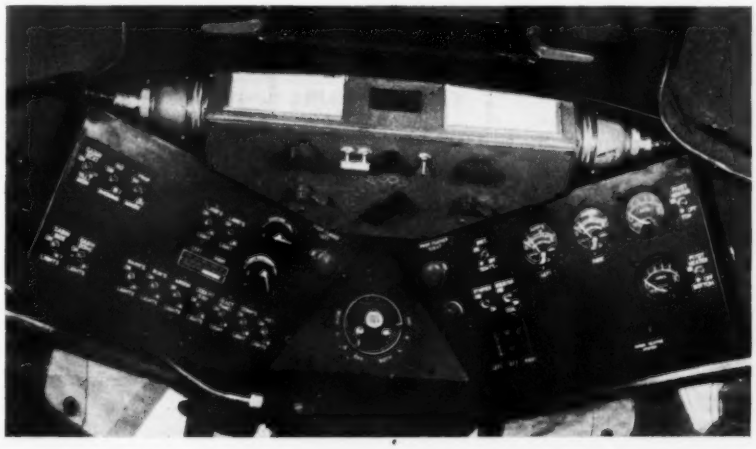
rocal transit of military aircraft through the territories and territorial waters of the two countries was agreed to by the Senate (April 3).

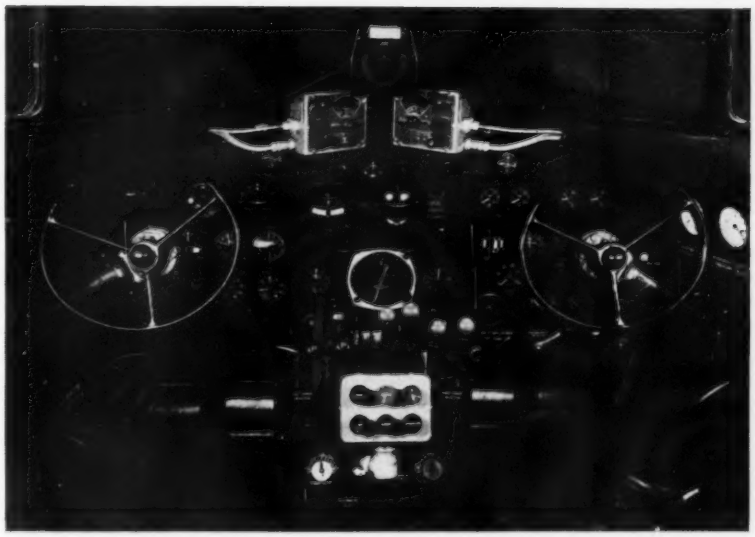
H. R. 4276—APPROPRIATION BILL FOR 1942; the bill making appropriations for the Departments of State, Commerce, Justice, and the Federal Judiciary for the fiscal year ending June 30, 1942, was passed by the House (April 3).

Lab Plane

(*Continued from page 101*)

The instrument is actually two radio direction finders interconnected, with their needles operating on the same azimuth scale. The needle of each receiver points to the station on which its receiver is tuned. Thus, when a station ahead and one to the rear are tuned in, the pilot can fly along a straight line between the stations by moving his plane to right or left until the needles form a straight line. The principle is made clear by stretching a rubber band between two points, considered as stations. By moving the band to right or left anywhere along its length, the relative position of the plane to the stations is revealed. Skilled instrument pilots can work out numerous other triangulation and navigation procedures with the new device. This is the first installation of its kind, but three manufacturers will soon have them on the market, and the airlines are planning to add them to their radio equipment. (See photos below.)





Radio Equipment for Laboratory Plane.—Pictured above are installations of radio equipment in the cockpit of the Civil Aeronautics Administration's new Douglas DC–S flying laboratory. Top view shows installation of master control panel located in windshield "V" directly forward of emergency escape hatch. Lower photo shows installation of two automatic radio compass control units located directly beneath magnetic compass and receiver sensitivity control unit mounted on control arm.

Private Flying

Civil Aeronautics Report Discusses Idling Characteristics in Flight

Release Offers Pilots Operations Suggestions

During the past year the Civil Aeronautics Administration has received over *130 reports of engine stoppage while idling in flight*, involving all types of aircraft equipped with 4-cylinder horizontal-opposed engines or from 40 to 80 horsepower. In most of these reports the pilots have stated that it was possible to restart the engine in flight. Forced landings have therefore resulted and personal injuries have occurred in some of the cases. Undoubtedly the reports received do not represent all of the instances of this type of trouble. It is also known that there have been other cases of engines stopping which have not been reported since the engines turned freely enough to start themselves again in flight.

The Administration is taking steps with the maufacturers concerned to obtain design improvements in new aircraft engines and their installations which will tend to eliminate these difficulties. Some of these changes undoubtedly can be applied to the powerplant installations of aircraft already in use.

It is well known that the amount an engine cools off or loads up in flight depends a good deal upon pilot-operating technique. The pilots have indicated in some of the reports received that the engine was neglected for long periods of time. It is therefore logical to expect that the recent increase in flying activity has caused a corresponding increase in experience of this kind. However, it has been found that idling difficulty occurs more frequently *under operating conditions* which *can be controlled and improved.*

Certain measures have been found helpful by the Civil Aeronautics Administration in correcting unsatisfactory idling conditions. These measures are based upon an extensive investigation of the reports received, and include the recommendations of the aircraft, engine and carburetor manufacturers involved. The Aircraft Airworthiness Section has prepared a release containing suggestions for the operation of aircraft under idling conditions. The text of the release follows:

Slow Idling Is Dangerous

An idling adjustment resulting in an even slow speed on the ground is not a sufficient precaution to prevent difficulty in flight. Carburetor operation is affected by cold air, humidity, rain, angle of flights, bumps, and maneuvers. It is therefore necessary that the idling speed be sufficiently fast to allow for these variations. *Ground idling speeds for engines of this type should not be set to less than 550 RPM.* Engines with ratings in excess of 2,700 revolutions per minute should be set proportionately higher. The carburetor heat should be "off" when setting idling speeds in summer and "on" when setting them in winter. The engine should be thoroughly warm with the cockpit mixture control, if installed, in the full rich position. Excessive idling speeds should be avoided since the gliding angle is flattened to a point where spot landings become difficult.

Check Idling Speeds Frequently

The idling speed usually tends to reduce due to wear in the throttle set screw adjustment and operating time of the engine.

In setting the idling speed of an engine of this type, set the throttle stop screw for the desired speed and move the idling mixture adjustment until even operation and the fastest speed is obtained. Next slightly enrich the idling mixture adjustment and reset the throttle stop screw for the desired speed. Then move the throttle open and closed several times to determine that no change in the idling speed results.

Gun Your Engine During Glides

An engine appreciates attention during a glide. Wherever possible, except during final approaches to landings and when practicing landings, it is advisable to operate at part throttle, instead of at closed throttle, in order to keep an engine warm and clear. Very little power is produced by part throttle positions since it takes at least one half of the rated revolutions per minute to produce one-eighth of the rated power. To keep an engine ready for use the throttle should be kept closed only for short intervals during flight. For example, after each maneuver such as a stall or spin the engine should be thoroughly warmed up and cleared out. *In a prolonged glide the throttle should be gradually opened a sufficient amount to clear the engine at least every 250 feet of altitude lost or about* every 20 seconds. In gliding for a landing it is also advisable to clear the engine when crossing the boundary of the field so as to make sure that it will be available for use at the time of landing. To clear an engine it is necessary only to open the throttle to between the one-third and one-half open position. It need only be left there for a short period to clear the spark plugs and develop heat in the intake system.

A rapid opening of the throttle should be avoided with these engines since the carburetors are not equipped with an accelerating pump. The rapid opening of the throttle produces a momentary lean mixture which may cause engine stoppage if the engine is cool. Pilots should make it a habit to ease the throttle forward until the engine picks up speed before pushing it wide open.

Your Carburetor Likes Heat

Make it a rule to turn on your carburetor heat before closing your throttle. An engine needs heat during any extended idling operation during glides. The carburetor heater-control should therefore be moved to the "full-on" position prior to closing the throttle for a landing or prior to a closed throttle maneuver in flight in any outside air temperature. To avoid icing and idling difficulties *use full heat all of the time when the ground temperature is 50° F. or below.* If desired it is satisfactory to disconnect or secure the heat control and operate the airplane with the heat in the "full-on" position if there is no likelihood of the airplane's encountering higher temperatures during the winter months. This applies particularly to tandem airplanes where the heat control is not readily accessible from the rear seat. *Full heat should also be used when high humidity or rain is present in outside air temperatures of 70° or less. Indications of high humidity are visible moisture, fog, cloud, or damp air. Loss in revolutions per minute is usually the first indication of icing.* If loss of revolutions per minute is experienced from this cause, apply full heat immediately. Part open positions of the heater control are of little value in installations on aircraft of 40 to 80 horsepower since it is impossible to judge whether an adequate amount of heat is turned on. In most cases little heat is added to the intake system until the valve is almost in the full hot position.

There is a hazard involved in the use of intake heat, however, which *should not be disregarded.* In view of the adverse effect upon the performance of the airplane, heat should be used with caution during take-offs in outside temperatures above 50° F. To get ample performance from your airplane for take-off it may be necessary to take off in dry air with the heat control "full cold" when the ground temperature is less than 50°. This applies particularly to the 40- and 50-horsepower installations. When adequate take-off space is available full heat can be used, when it is needed, in air temperatures up to 70°. *Full heat should not be used for take-off in temperatures above 70° F. unless the operating procedure for the particular model airplane requires it.*

Keep Your Carburetor Idling System Clear

A number of reports have been received concerning *erratic idling caused by the air bleed to the idling jet in the carburetor being clogged with dirt or bugs.* This trouble is noticeable on the ground since the engine will either fail to idle or idle unevenly. To correct this condition the idling passages should be cleaned. In no case is it safe to increase the idling speed of the engine to compensate for this difficulty. Steps have been taken with the carburetor manufacturers to obtain a permanent solution to this difficulty. The Marvel carburetor is adaptable to the use of an idling air bleed screen. It is believed that less frequent inspections of the idling system will be required when such a screen is installed. Since trouble with the air-bleed clogging depends upon the nature of the landing surfaces used, it is important that owners of aircraft equipped with Marvel carburetors who need this protection obtain the screen from the Marvel-Schebler Carburetor Division, Flint, Mich., or their authorized service stations.

Other Sources of Idling Trouble

Any fuel or air leak into the carburetor or induction system will cause idling difficulty. To prevent this, engine primers should be shut off and be leaktight. At all times in flight the primer should be locked in the "off" or the "in" position. The intake pipes and intake pipe connections should be carefully examined to determine that the clamps are tight and no sources of leakage are present. Carburetor-flange attachment bolts should be kept tight to avoid leakage between the carburetor and its mounting flange. Gaskets at this point should be renewed each time the carburetor is detached. The gasket when installed should not extend beyond the edge of the carburetor barrel.

An air leak through the throttle shaft bushings can cause erratic idling. This results from wear conditions and is normally corrected at the time of the engine overhaul. Check your throttle shaft bushings for wear. If any appreciable looseness or shake is felt the bushings should be replaced.

It Takes only a Small Quantity of Water To Stop an Idling Engine

Water present in fuel which has not affected the normal operation of an engine may still stop the engine when the throttle is closed. *Be water conscious.* Check your fuel system strainer daily for the presence of water and watch the source of the fuel put in your tanks.

Put your cockpit mixture control in the full rich position before closing the throttle. Engines of the type under consideration do not require any use of the cockpit mixture control under 5,000-foot altitude. The control, if your airplane is so equipped, should therefore be left full rich except when flying above this altitude. Make it a habit to check the position of the mixture control and push it to the full rich position before you close the throttle in flight.

Thoroughly warm up your engine before take-off. A cold engine may operate at take-off power but is liable to stop when the throttle is closed.

A Stuck or Leaking Carburetor Float May Cause Idling Failures

Any indication of engine roughness in the idling range or a leaking carburetor may mean that your carburetor float is not functioning properly.

Exhaust Manifold Leaks Affect Idling

Uneven idling may be produced by loose connections in the exhaust system.

Fuels and Oils Affect Idling

Poor idling operation often results from the use of fuels or oils not recommended by the engine manufacturer. *Use only aviation gasoline.* No aircraft engines are at present approved for use with automobile gasoline.

Ignition

Idling difficulties are aggravated by ignition trouble. Bad or dirty spark plugs, burned or sticking ignition points, and old ignition wire cause difficulty. *Only use spark plug models and gap settings recommended for each engine model by the engine manufacturer.* When ignition trouble is suspected, the magneto should also be checked for spark intensity.

Winter Operation

In preparing an airplane of the 40- to 80-horsepower type for winter operation, better idling characteristics and higher oil temperatures are obtainable if the front opening in the cowling for crankcase cooling is temporarily closed during cold weather operation. In most cases the manufacturer has available suitable plates for this purpose. It is also permissible to cover the opening with doped fabric. The opening should be uncovered when operation in warm air temperatures is contemplated. In extremely cold weather it may be necessary to lag the intake manifolds and oil tank.

Summary

Idling Speed Setting.

1. Set not less than 550 revolutions per minute. (Avoid settings as high as 700 revolutions per minute.)
2. Check idling speed frequently for any change.

Gunning Engine.

1. Avoid prolonged closed throttle operation.
2. Gun engine every 250 feet altitude or every 20 seconds (in glides).
3. Open throttle gradually.

Use of Carburetor Heat.

1. Use full heat for 50° F. or below.
2. Use full heat for 70° F. or below if high humidity or rain present.
3. Heat affects performance, so use it cautiously.
4. Heat not required above 70° F. except with certain airplanes.

Carburetor Idling System.

1. Erratic idling may mean clogged idling system.
2. Clean idling passages if engine fails to idle or idles unevenly.

Ignition System.

1. Irregular idling may be caused by a faulty ignition system.
2. Check ignition points for burning or sticking.
3. Use only recommended spark plugs with proper gap settings.

Improper idling in flight can be caused by—

1. Engine cooling off.
2. Slow idling.
3. Loading-up in glide.
4. Burned or sticking ignition points.
5. Lack of heat in the carburetor intake system.
6. High humidity or rain.
7. Air bleed closed in idling jet.
8. Fuel or air leak in carburetor induction system.
9. Water or sediment in fuel.
10. Mixture control not full-rich.
11. Improper warm-up.
12. Stuck float or leaking carburetor.
13. Exhaust manifold leaks.
14. Improper fuels or oils.
15. Improper spark plugs and gap settings and leaking ignition harness.
16. Lack of winter protection measures such as closing cowling openings.

Warning.—An engine which is idling improperly from any of the above causes is liable to stop in throttled-flight maneuvers or when the throttle is opened too suddenly.

C. P. T. Grads Eligible for Weather Instruction

Through cooperation between the Civil Aeronautics Administration and the United States Weather Bureau, a maximum of approximately 250 candidates will be selected for training in meteorology during an academic year commencing on or about July 1, 1941, and ending on or about February 28, 1942. Postgraduate and undergraduate courses will be given at five universities. Upon the successful completion of the postgraduate course the student will receive a master of science degree. To those qualified for and who successfully complete the undergraduate course, a bachelor of science degree will be conferred. Tuition, and expenses approximating $75 per month for room and board, will be paid by the Government. Tuition and expense allowances are the same for both classes of students. In recent years the demand for qualified meteorologists has far exceeded the supply and in this rapidly expanding field many young men are finding an interesting and profitable career. Candidates must be willing to enter the Government service with the reserve forces of the Army or Navy or as commissioned employees in the Weather Bureau or other governmental agencies upon completion of the course.

(*See* WEATHER, *page 111*)

Air Safety

Observe Traffic Rules, C. A. B. Urges

Safety Bulletin Lists Pointers for Flight

The importance of observing commonsense traffic rules is stressed in a recent safety bulletin issued by the Civil Aeronautics Board.

"A head on the shoulders is worth two head-ons in the air," the Board declares. The bulletin, which lists rules by which pilots may check their flights, follows:

"Plane" Sense

A head on the shoulders is worth two head-ons in the air!!!

Help reduce the number of collisions in the air during 1941 by constant alertness, courtesy, and compliance with the common-sense traffic rules[2] in the Civil Air Regulations. For good, safe TAKE-OFFS and LANDINGS check your flight by the following rules:

1. Observe local field traffic rules.
2. Always make sure there is no danger of collision before taking off.
3. Circle an airport to the *left*, unless local regulations specify otherwise.
4. *Always maintain a straight approach course for the last 1,000 feet before crossing the airport boundary.*
5. Follow the circuit rule when making a contact flight within three miles of the center of an airport if you are below 3,000 feet.
6. Traffic coming into or leaving a control airport takes precedence over traffic within the control zone of the airport.
7. When starting or running an airplane engine always station a competent operator at the engine controls within the plane, have chocks under the wheels, or an adequate parking brake fully set.
8. When approaching a landing area where there is a congestion of people, planes, or autos proceed with caution and make sure that the landing area is "open."
9. Pertinent today is the CAR advice; on take-offs or landings over any high explosive danger area always make sure that an emergency landing can be made outside of such area.

[2] From Civil Aeronautics Administration Manual 60, SUMMARY OF FLIGHT RULES.

[INDIVIDUAL ACCIDENT REPORTS]

Stall in Low Climbing Turn

A stall during a climbing turn at low altitude caused the crash near Bakersfield, Calif., on April 7, 1940, in which commercial pilot Manning O. Wiley and his passenger, Harry T. Rice, received serious injuries.

Pilot Wiley, who had logged 1,178 hours, took off with his passenger from the Kern County Airport, Bakersfield, on a local flight. When an altitude of approximately 500 feet had been gained, the pilot put the plane into a downwind glide, which continued until the aircraft was at a height of approximately 15 feet. At this point the pilot applied power and placed the airplane in a steep climbing attitude. At an altitude of about 40 feet the pilot attempted a left turn, with the aircraft held in a nose-high attitude. The engine lost power during this turn and the plane stalled and fell into a left spin which continued until the aircraft struck the ground on its nose and left wing.

Subsequent investigation revealed that there was an ample gasoline supply in the tank of the Luscombe 8 at the time of the accident. The cause of the loss of power in the 50-horsepower Continental engine was not determined.

Probable Cause.—Pilot stalled the aircraft during a climbing turn at low altitude.

Contributing Factor. Engine lost power during climbing turn.

Passenger Injured by Revolving Propeller

Failure of a passenger to stay clear of a revolving propeller caused serious injury at Municipal Airport, New Haven, Conn., on September 15, 1940.

Private Pilot August Weninger and his passenger, Miss Lola Frey, landed at the Municipal Airport after completing a short local flight. Miss Frey alighted from the aircraft and started running, unattended, toward her sister, standing nearby. As she passed in front of the aircraft her left hand was seriously injured when it came in contact with the revolving propeller. The aircraft was an Aeronca C-3, powered by a 36-horsepower Aeronca E-113-C engine.

Probable Cause.—Failure of passenger to stay clear of revolving propeller.

Contributing Factor.—Carelessness of pilot in discharging passenger without taking necessary precautions to prevent accident.

Loss of Control Following Take-off

The pilot's failure to control an aircraft following a take-off caused the crash near Crawfordsville, Ind., on October 6, 1939, in which uncertificated Pilot Charles L. Rhodes and his passenger, Mrs. Dafford Allen, were seriously injured.

Rhodes landed in a field on his father's farm and, after making several practice flights, took off with his sister as a passenger. The aircraft had attained an altitude of approximately 50 feet immediately following take-off when it began to settle as it neared the fence at the boundary of the field. The pilot made a left turn to avoid striking the fence and the left wing of the aircraft brushed through a tree top at the edge of the field, causing the aircraft to stall and to fall off to the right to the ground. The aircraft, a Piper, model J-2, powered by a 40-horsepower Continental A-40-4 engine, received major damage.

Probable Cause.—Failure of the pilot to control the aircraft properly following a take-off.

Contributing Factor.—Inexperience of the pilot.

Exhibition Jumper Delays Pulling Ring

Parachute jumper William Reck was killed when he delayed pulling his rip cord, over Waverly Beach, Wis., on June 23, 1940, until it was too late for the parachute to function effectively.

Reck was equipped with both chest and back parachutes when he made an exhibition jump from a Stinson SM 8A at an altitude of approximately 1,600 feet near Waverly Beach. The pilot of the plane, Donald K. Nicholas, stated that the jumper left the airplane in a normal manner. The jumper was fatally injured when he landed in a marsh bordering a lake, with his chest parachute only partly opened at the time of impact. Subsequent investigation revealed that he had intended making a delayed jump. The rip cord of the back parachute had not been pulled.

Probable Cause.—Parachute jumper delayed pulling rip cord until too late for the parachute to function effectively.

Pilot Crashes in Self-Destruction Effort

Intent of the pilot to demolish the aircraft caused the crash at Fort Morgan Municipal Airport, Fort Morgan, Colo., on September 7, 1940, in which Private Pilot Charles G. Pierce was seriously injured.

(*See* SAFETY, *page 116*)

Accident Investigation Procedure Broadened

"Records indicate that carelessness and the lack, in many individuals, of a feeling of moral responsibility are the causes of a large proportion of accidents. It is felt that every step possible to reduce accidents must be taken promptly and pursued through all possible ramifications."

This statement is the theme of a release prepared by the Certificate and Inspection Division of the Civil Aeronautics Administration, "Indirect Responsibility in Accident and Violation Cases" which has been distributed to active airports, state aviation officials, approved repair stations, and airport traffic-control towers.

The release urges cooperation of all parties with the Civil Aeronautics Board's Safety Bureau in the investigation of accidents. It is the intention of the Safety Bureau, the release states, to take cognizance of all actions by any persons, either certificated or uncertificated, which may have a bearing on the safety of aircraft operations, particularly where an accident, or violation or regulations which might lead to an accident, is involved.

The release also summarizes the responsibilities of the two agencies, as follows:

Safety Bureau's Responsibility

In accordance with the provisions of the Civil Aeronautics Act of 1938, as amended, the Safety Bureau is charged with the duty of investigating accidents to civil aircraft; reporting the facts, conditions, circumstances, and probable cause of such accidents to the Civil Aeronautics Board; making recommendations, subject to the approval of the Board, which, in its opinion, would tend to prevent similar accidents in the future; making such reports and recommendations public in such form as may be deemed to be in the public interest; and recommending to the Civil Aeronautics Board new regulations and amendments to existing regulations in the interest of safety.

Certificate and Inspection Division's Responsibility

The Certificate and Inspection Division is responsible for the airworthiness of all certificated aircraft and assists in the enforcement of the Civil Air Regulations. This responsibility for airworthiness does not end with original certification but includes the *continued maintenance of this airworthiness.* Many accidents reveal unforeseen deficiencies, maintenance troubles, etc., which necessitate *immediate action* to prevent similar occurrences in the many other airplanes of the same model or type which are already in service. Therefore, it is necessary that personnel of the Certificate and Inspection Division also investigate accidents with regard to the airworthiness of the aircraft, the competency of the airmen, and violations of the Civil Air Regulations which may have contributed to the accident.

Propeller Accidents in 1939–40

Board Survey Reveals Every One Preventable, Urges Greater Caution

Following are excerpts from the SURVEY OF 1939–40 PROPELLER ACCIDENTS made public by the Civil Aeronautics Board. Calling the attention of all pilots and airport personnel to its findings, the Board declared that it is their duty to make sure that accidents such as those reported do not recur.

Propeller Accidents in Non-Air-Carrier Flying

[*Calendar years 1939–40*]

The purpose of this report is to present factual information on propeller accidents and to offer constructive suggestions to reduce the frequency of their occurrence. Ten fatal and thirty-one serious propeller accidents were reported during 1939 and 1940. Averaged over a period of 2 years, these 41 accidents show a frequency of approximately 1 every 18 days. It is particularly tragic that propeller accidents have included bystanders, passengers, and children among the injured persons.

Propeller accidents differ from other aircraft accidents in that they usually result in fatal or serious injury. This is due to the fact that a propeller rotating under power, even at slow idling speed, has sufficient force to inflict serious injury to anyone it strikes.

How these accidents occurred.—The following tabulation presents the general picture of how these accidents occurred and what they cost in terms of life and limb:

NATURE OF ACCIDENT	INJURIES		TOTAL	PERCENT
	Fatal	Serious		
I. Walked into revolving propeller	7	11	18	44
II. Swinging propeller to start engine	1	14	15	36
III. Struck by moving aircraft	2	4	6	15
IV. Propeller flew off	------	2	2	5
Total	**10**	**31**	**41**	**100**

Summary

In reviewing these 41 propeller accidents, one is impressed with the fact that every one of them was preventable. Each accident represents at least one person killed or severely injured, and the casualty list includes not only airmen and passengers, but a high percentage of innocent bystanders, men, women, and children. The danger of a whirling propeller is universally recognized, and regulations have been carefully prepared to minimize this hazard. However, all such accidents, though not wilfully so, are, in the major part, the result of thoughtlessness or carelessness on the part of some individual.

It would serve no useful purpose to cite the multitude of "don'ts" which are indicated in these accidents. Most of them are self evident to the airmen. It should be pointed out, however, that the pilot must at all times assume the direct responsibility for safeguarding his passengers, his students, other airmen, and the public against the dangers of propellers and of airplanes in motion on the ground.

The propeller is difficult to see when in operation, and the nonprofessional public is often not aware of its danger. Even personnel familiar with the danger of a turning propeller are likely to forget it. Many pilots paint the tips so that the propeller describes a colored circle when it revolves, which makes it more apparent.

It is an obligation on the part of the pilot to insure that his passengers get to and away from his airplane safely, whether this be accomplished by stopping his engine completely at time of loading and unloading, or by providing a definite means of keeping them clear of the propeller if he leaves it in motion.

Before starting the engine, the pilot should assure himself that the chocks are properly placed; and whether he swings the propeller or operates the cockpit controls, he should, as a matter of routine, see that every reasonable precaution is taken against possible accident. For him to start his engine without an experienced assistant is a direct invitation to a serious accident which may involve an innocent bystander.

The flying field is a dangerous place for the general public and persons not experienced in the ground operation of aircraft. Here the pilot's responsibility is a heavy one, and he must have the support and cooperation of the operator and especially the airport manager. Many modern airports have fences to separate the general public from the operator. This reduces the responsibility of the pilot; but should he become careless or fail to appreciate the continuous hazard, he might at any time encounter trouble, especially when flying from rural fields where such protective facilities are not available.

The thoughtful pilot will execute care when taxying or turning his plane, to protect the bystanders from the sand blast and the loose stones that fly in the wake of the propeller blast. This sometimes is the cause of minor accidents, such as sand being blown into the eyes of spectators that are never recorded. It reflects poor technique on the part of the pilot.

When the flying public demands it, the manufacturers will provide a suitable starter that is applicable and practical for the smaller type of plane. This, with the addition of good brake equipment, should eliminate a large percentage of these accidents, and allow the pilot to remain in the cockpit at the controls when starting his plane. However, he must be sure to ascertain that no one is standing near the propeller when he starts it.

To curb or decrease these accidents, it might be well to emphasize this type of hazard when training the student, and drill into him the various causes of propeller accidents and their results.

Airways and Airports

Administrator Connolly Discusses Airport Location Problems

Letter to New Yorker First of Series

One of civil aviation's current problems is how to get the best possible airports near to great cities. Cities beget hazards, restrict available space. Remote locations are inconvenient. From time to time the Civil Aeronautics Administration will reproduce pertinent correspondence on significant subjects which might prove helpful in promoting understanding of such problems. Herewith is such a letter to a New York woman who urged that drastic steps be taken to improve safety features at certain major airports such as Chicago and Detroit:

DEAR MRS. ————:

The Secretary of Commerce has referred to me your letter of December 10, concerning the accident at Chicago, and your comments and suggestions have been given careful consideration by our technical people.

Your understanding that the Government has economic jurisdiction over the air carriers, as well as jurisdiction with respect to the airworthiness of aircraft, operations, procedures, and competency of various types of airmen, is correct. It also has jurisdiction over airports used in air-carrier operations, in that it can determine whether or not the airport should be used for passenger services and, if it is to be used, by what types of aircraft it may be used and under what conditions of weather and loading it may be used by such aircraft. In reaching such determinations careful investigation is made by aeronautical inspectors who are pilots of long experience with various types of aircraft, including those used by air carriers. This investigation includes a study of the landing surface available, the effect of bad weather on the surfaces, providing they do not happen to be paved runways; the location, distance, and angle of elevation of the various obstructions about and in the vicinity of the airport; the altitude of the airport and the altitude effect resulting from the various types of weather conditions which are to be experienced. This study includes numerous flights in and out of the airport, under the various directions, with the type of equipment proposed to be used, and in the company of experienced captains and chief pilots of the air carriers who propose to use the airport.

The original Chicago airport comprised the area to the south of the railroad, which you mention as being directly across the airport, and that area provides runways long enough for landing and take-off of any aircraft now used by air carriers operating in and out of Chicago. However, in order to allow for greater margin of safety with present type aircraft, and to be sure of accommodating the larger type of aircraft which are in prospect for air-carrier use in the near future, the city of Chicago acquired the area to the north of the railroad and undertook its development as an addition to the original airport. The removal of the railroad tracks, established long before any airport development began, required court proceedings for acquisition by condemnation, and provision of a new right-of-way for the railroad. The legal procedure necessary has been underway for some time and should, it is hoped, be completed very soon. However, the Civil Aeronautics Administration, as you can well realize has no control over the progress of such proceedings.

Location of Airports

The proper location of airports for commercial flying is a very difficult problem. The existence of obstructions and hazards to flight creates the demand for airports. By this, I mean that concentration of population, which results in the erection of tall buildings, factories, high tension transmission lines, radio stations, gas holders, and other structures, brings about the demand for air transportation, and for airports where city-dwelling owners of aircraft may operate the aircraft which they purchase for pleasure or business. In open farm country, on the grazing plains or desert areas such as are found in the West, where there are no large aggregations of population, there is no problem in locating airports free of all obstructions, but there also is no great demand for airports of the type we are discussing. The greatest number of airports are needed in the most thickly populated areas, and particularly in the great cities of the country. Thus the demand for airports is in proportion to the existence of artificial hazards to flying. Even in the vicinity of the large cities, it would be possible to get far enough away from the business centers to be in comparatively open country where few hazards would exist. In such a case, the airport becomes less useful, and air transportation operated from that airport saves little time, as compared with other methods of transportation and, therefore, is of little value.

In the case of Detroit, which you mention, a very fine airport (Wayne County Airport) with no appreciable artificial hazards to flying, is located 25 miles west of the business section of the city and air transportation originally operated from that airport. However, the loss of time and inconvenience involved in getting to and from the business section of Detroit, resulted in very little air traffic to Detroit. When the Detroit Municipal Airport was established, at a point much nearer and more convenient to the business and population center, air traffic into Detroit multiplied many times over. However, the impracticability of further enlargement of the Detroit Municipal Airport, in order to take care of further increased traffic and larger aircraft, has been realized and the city of Detroit is now undertaking development of a new municipal airport a little farther out in the same general direction where a larger area can be made available and where fewer obstructions exist.

We could make flying safer by permitting operations only in daylight and clear weather, but that would make air transportation so undependable that operations undoubtedly would cease. Flying could be made absolutely safe only by grounding all airplanes. The same thing is true with respect to any form of transportation. Automobile accidents could be reduced enormously by mechanically-limiting their maximum speeds to 10 or 12 miles an hour, but the automobile would not be worth having under those circumstances. Increased speed, which is the factor of greatest importance in almost any form of transportation, involves an increase in the hazards, and our engineers endeavor to offset those increased hazards by improved mechanical devices so that the increased speed may be obtained without corresponding increase in hazard.

Further progress in aeronautics, as well as in all other forms of transportation, inevitably means development of features which, without offsetting improvements in mechanical devices, would decrease the risk to the user. The prime object and endeavor of those who are concerned with the supervision or control of such transportation is to develop mechanical devices or procedures which will offset or reduce the risks involved in operations which otherwise become inherently more hazardous with each increment of increased speed or additional load-carrying capacity.

I think a fair appraisal of the results achieved in the steady reduction, over a period of years, in aviation risks, as indicated by the premiums quoted by insurance companies, in spite of the enormous advance in speed and size of aircraft, will indicate that the Civil Aeronautics Administration and its predecessor agencies, as well as the air carriers, aircraft owners, and aircraft

Airport Projects Approved

In accordance with the provisions of section 303 of the Civil Aeronautics Act, the Administrator of Civil Aeronautics has issued certificates of air navigation facility necessity, authorizing the expenditure of Federal funds in the operation of the following projects:

ALABAMA

Anniston, Municipal Airport (WPA)	$94,025
Foley, Foley Airport (CAA–WPA)	84,983

ARKANSAS

Little Rock, Municipal Airport (WPA)	38,424

CALIFORNIA

Long Beach, Municipal Airport (WPA)	123,594
Oakland, Municipal Airport (WPA)	281,319
San Francisco, Municipal Airport & San Mateo Seaplane Base (WPA)	225,824

CONNECTICUT

Bridgeport, Municipal Airport (CAA–WPA)	346,911

DISTRICT OF COLUMBIA

Gravelly Point, Washington National Airport (FWA–PWA)	140,000

FLORIDA

DeLand, Municipal Airport (WPA)	60,226
Gainesville, Municipal Airport (WPA)	66,898
Jacksonville, Municipal Airport (CAA–WPA)	376,842
Lake City, Municipal Airport (CAA–WPA)	304,574
Miami, International Airport (CAA–WPA)	900,529
Ocala, Taylor Field (CAA–WPA)	152,013
Palatka, Municipal Airport (CAA–WPA)	301,457
Pensacola, Municipal Airport (WPA)	290,000
St. Augustine, Municipal Airport (WPA)	18,592
St. Petersburg, Pinellas County Airport (CAA–WPA)	189,676
Sarasota, Sarasota-Manatee County Airport (CAA–WPA)	206,748
Tampa, Henderson Hillsborough Ct. International Airport (WPA–CAA)	284,552
Zephyrhills, Municipal Airport (WPA)	42,745

INDIANA

Fort Wayne, Municipal Airport No. 2 (CAA–WPA)	175,735

IOWA

Des Moines, Municipal Airport (WPA)	250,000

LOUISIANA

Baton Rouge, East Baton Rouge Parish Airport (WPA)	348,647

MAINE

Waterville, Municipal Airport (CAA–WPA)	234,000

MARYLAND

Baltimore, Municipal Airport (WPA)	281,281
Hagerstown, Municipal Airport (CAA–WPA)	381,283

MICHIGAN

Alpena, Captain Phelps Collins Airport (WPA)	132,546
Battle Creek, W. K. Kellogg Municipal Airport (WPA)	905,626
Kalamazoo, Municipal Airport (WPA)	340,456
Muskegon, Muskegon County Airport (WPA)	126,981

MINNESOTA

Morris, Municipal Airport (WPA)	$21,014

MISSISSIPPI

Jackson, Hinds County Airport (CAA–WPA)	438,079
Laurel, Municipal Airport (WPA)	37,995
Meridian, Key Municipal Airport (WPA)	527,313

MONTANA

Missoula, Missoula County Airport (CAA–WPA)	542,870

NEBRASKA

Kearney, Municipal Airport (WPA)	18,435

NEVADA

Elko, Municipal Airport (WPA–CAA)	116,829

NEW HAMPSHIRE

Claremont, Claremont Airport (WPA)	25,230
Manchester, Manchester Airport (WPA)	297,172

NEW MEXICO

Las Vegas, Municipal Airport (WPA)	1,712

NORTH CAROLINA

Burlington, Municipal Airport (WPA)	111,444
Charlotte, Municipal Airport No. 2 (WPA)	328,508
Elizabeth City, Municipal Airport (WPA)	139,277
New Bern, New Bern Airport (WPA)	110,901

NORTH DAKOTA

Grand Forks, Municipal Airport (WPA)	103,449

OHIO

Springfield, Municipal Airport (NYA)	8,430

OKLAHOMA

Muskogee, Municipal Airport (CAA-WPA)	240,135
Shawnee, Municipal Airport (WPA)	258,780

OREGON

North Bend, Municipal Airport (WPA)	349,571
Warrenton, Port of Astoria Municipal Airport (CAA-WPA)	635,878

PENNSYLVANIA

Erie, Port Erie Airport (CAA-WPA)	587,059
Johnstown, Municipal Airport (CAA-WPA)	472,245
Martinsburg, Martinsburg Airport—Cove Valley (NYA)	5,376
Warren, Warren Airport (NYA)	180
Waynesburg, Municipal Airport (NYA)	468

TENNESSEE

Nashville, Municipal Airport (WPA)	29,083

TEXAS

Beaumont, Municipal Airport (WPA)	33,265
Eagle Pass, Maverick County Airport (CAA-WPA)	286,379
El Paso, Municipal Airport (WPA)	49,939
Fort Worth, Municipal Airport (WPA)	328,623
Lubbock, Municipal Airport (WPA)	227,675

UTAH

Logan, Logan-Cache Airport (WPA)	121,312
Spanish Fork, Municipal Airport (NYA)	2,400

VIRGINIA

Lynchburg, Municipal Airport (CAA-WPA)	175,088

WASHINGTON

Bellingham, Whatcom County Airport (CAA-WPA)	$243,020
Bellingham, Whatcom County Airport (WPA)	168,304

WEST VIRGINIA

Ridgeley, Cumberland Municipal Airport (WPA)	2,030,212

WISCONSIN

Oconto, Oconto County Airport (WPA)	18,287
Superior, Municipal Airport (WPA)	170,400

manufacturers, have dealt energetically and successfully with the problem of increasing safety without unduly retarding progress in this very important field of human endeavor.

Sincerely,

(S) DONALD H. CONNOLLY,
Administrator of Civil Aeronautics.

Airspace Reservations

Executive Order No. 8718, issued by the President on March 22, 1941, establishes the Subic Bay Naval Defensive Sea Area and Subic Bay Naval Airspace Reservation in the Philippine Islands. The full text of the order follows:

By virtue of the authority vested in me by the provisions of section 44 of the Criminal Code as amended (U. S. C., title 18, sec. 96), and section 4 of the Air Commerce Act approved May 20, 1926 (44 Stat. 568, 570; U. S. C., title 49, sec. 174), the territorial waters within Subic Bay, Philippine Islands, between extreme high-water mark and the sea and in and about the entrance channel within a line bearing true southwest extending three nautical miles from Panibatujan Point, a line bearing true southwest extending three nautical miles from Sanpaloc Point, and a line joining the seaward extremities of the above two bearing lines, are hereby set apart and reserved as a naval defensive sea area for purposes of the national defense, such area to be known as "Subic Bay Naval Defensive Sea Area"; and the airspace over the said territorial waters and over the Subic Bay Naval Reservation, Olongapo, Philippine Islands, is hereby set apart and reserved as a naval airspace reservation for purposes of the national defense, such reservation to be known as "Subic Bay Naval Airspace Reservation".

At no time shall any vessel or other craft, other than public vessels of the United States, be navigated into Subic Bay Naval Defensive Sea Area, unless authorized by the Secretary of the Navy.

At no time shall any aircraft, other than public aircraft of the United States, be navigated into Subic Bay Naval Airspace Reservation, unless authorized by the Secretary of the Navy.

The provisions of the preceding paragraphs shall be enforced by the Secretary of the Navy, with the cooperation of the local law enforcement officers of the United States; and the Secretary of the Navy is hereby authorized to prescribe such regulations as may be necessary to carry out such provisions.

Any person violating any of the provisions of this order relating to Subic Bay Naval Defensive Sea Area shall be subject to the penalties provided by section 44 of the Criminal Code as amended (U. S. C., title 18, sec. 96), and any person violating any of the provisions of this order relating to Subic Bay Naval Airspace Reservation shall be

(*See* AIR RESERVATIONS, *page 114*)

Alaska Airport Work Progressing Rapidly

Six New Airports To Have at Least One Usable Runway by Winter

Before winter, at least one usable runway on each of six new airports in Alaska, located and engineered for national defense, will be in operation, according to a report made to Gen. Donald H. Connolly, Administrator of Civil Aeronautics, by C. A. A. engineers after a 2-month inspection tour through Alaska.

New airports at Juneau, Cordova, Boundary, Big Delta, West Ruby, and Nome are either in course of construction or awaiting receipt of bids for work to be done during the summer. In several remote sections, the last loads of supplies for construction of radio facilities are being taken in before the spring thaws wipe out the new trails broken by dog teams and tractor trains. By winter, Alaska's available airport facilities and radio aids to flying will be more than doubled.

C. M. Lample, Chief of the Airways Engineering Division, and Harry O. Strawn, Associate Airways Engineer, in company with Jack T. Jefford, Airways Inspector for the C. A. A. at Anchorage, visited all the new field sites, completed arrangements for development of some of them, and looked over plans and surveys already made for future development both of airports and airways in the Territory. They flew in one of the C. A. A.'s twin-motored Cessna monoplanes, landing on temporary fields which the hardbitten Alaska pilots have been using for years, and in some cases landing at the new sites. Flying in January, February, and early March, they used wheel landing gear throughout the tour.

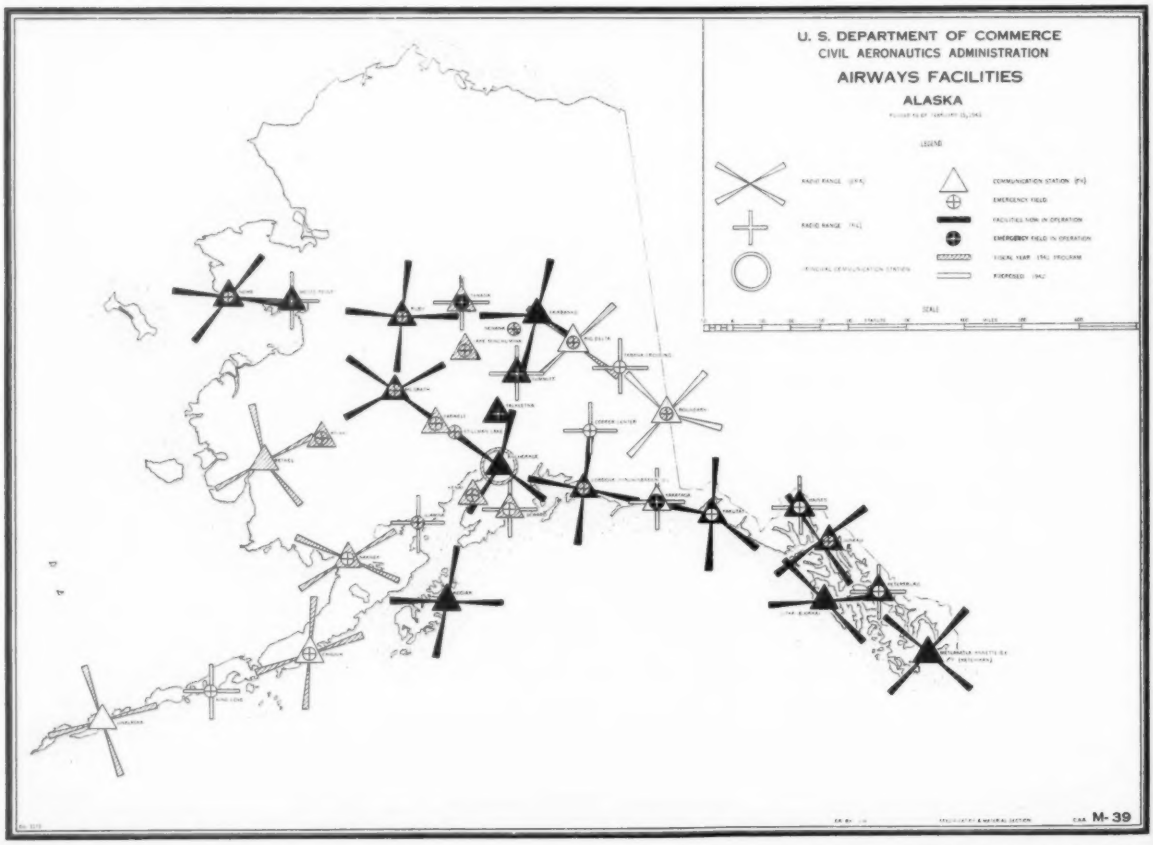
The new airports are a part of the $40,000,000 airport program instituted last year now being administered by the C. A A. and the Corps of Engineers. Alaska's share is $3,300,000 and is being handled by the Airways Engineering Division of the C. A. A. Canada's airways system will tie up with ours at Boundary.

Comparisons between existing facilities and the new facilities to be made available emphasize the growth of flying and forecast its increasing importance in the Territory, where "there is only one major highway," according to the airways men. At Nome, there is a landing place consisting of one runway on which commercial pilots have been landing for years but which is far from adequate for even the most meager of military uses. The new field there will have runways in two directions, 4,500 feet long or longer.

At Cordova, the "airport" is literally a wide place on a road that leads out from town. The airport is the end of the road and is situated on the side of a mountain. The runway is 2,200 feet long, with the mountain towering on one side and dropping down to the river on the other. The new field, 12 miles from town, lies in the public domain, and will make possible runways more than 5,000 feet long.

At Big Delta and Boundary, along the Juneau-Fairbanks-Nome Airway, the new fields will be adequate in size to accommodate the largest military planes. The field at Big Delta is the only field in Alaska which lies alongside a highway, and this is the only major highway in Alaska, leading from Valdez to Fairbanks. This road is closed in the winter, but the airports are kept usable by the Alaska method of rolling the snow, which packs it so that wheel landings can be made on it.

The airport at a point west of Ruby, so remote that the engineers had to find a name for it—they call it West Ruby—turned out to be a pilot's dream in a weary land when it was surveyed and its possibilities established. The old



field at Ruby is on a hogback mountain, consisting of one runway, 1,800 feet long, with a dog leg in the middle. The runway is narrowest at the bend and the wind direction is claimed to be always at right angles to the runway. It is obstructed at the south end by higher mountains and on the north drops off precipitately to the Yukon River, 800 feet below.

The new field is located in a valley so wide that instrument approaches and let-down procedures can be made in any direction. It is on a piece of tableland that rises 150 feet above the valley floor and is about five miles in diameter. During the spring the whole valley is flooded except this tableland. The land is on public domain. It was located by Jefford while flying the mail and Lample and Strawn chose it at once as the best site. Its remoteness and its size actually make it a perfect defense base, they believe, despite the fact that supplies will have to be flown in or ferried up the Yukon. Runways of any length can be laid out, the first to be approximately 5,000 feet long in the prevailing wind direction.

Juneau's present field is likewise inadequate for military uses and inadequate as well for commercial uses as these are understood in the States. The new field will be adjacent to the present field and contain part of it and have runways in two directions, each about 5,000 feet long. Use of the present field can continue as construction proceeds.

The status of the six projects is as follows: Proposals on Juneau and Cordova already issued, bids to be opened May 15; proposals on Big Delta, Boundary, Nome, and West Ruby were to be ready for publication early in April. Proposals are being distributed throughout the States as well as the Territory of Alaska.

In every case thus far surveyed, the underlying base of the fields is gravel. To prepare runways, the surface dirt is scraped off and more gravel, also available nearby in every case, is laid. In some cases a binding agent will be used on the gravel, producing, in effect, hard-surfaced runways such as are at use in airports in the States. Even when the gravel is merely rolled, it produces a runway adequate for the heaviest planes. There are 50 C. A. A. employees permanently assigned in Alaska and a total of about 500 will be used on construction while the new airports are being installed.

As part of the Civil Airways system in Alaska, and independent of the airport program, simultaneous radio range and broadcast radio stations are installed or being installed adjacent to the new fields. There are now 16 radio facilities including communication stations and radio ranges, and 17 more are expected to be installed during 1941–42. Also proposed for construction during this period is lighting equipment, consisting of boundary lights and beacons, at 17 such landing fields, including the 6 airports now to be constructed, and fields at Copper Center, Tenana Crossing, Naknek, King Cove, Chignik, and other points. Weather observations taken at every radio facility will be distributed from the forecast stations to all airports.

Some of these fields and radio stations are so remote that supplies can be brought in on the surface only once a year. With the increase in civil and military flying, Lample and Strawn estimate there will be at least one caller a day at almost every field, and, included in the living accommodations for the attendants, is one extra room which might be used by overnight visitors. Even today, Alaskan pilots always gather up all available literature before every flight and drop it off for isolated trappers, miners, and airways workers.

There are two regular air services in operation in Alaska, between Seattle and Juneau, and between Nome and Juneau, conducted by Pan American Airways and its subsidiary, Pacific Alaska Airways. The Civil Aeronautics Board is now considering applications for additional routes between Juneau and Anchorage and routes to serve other strategic points in the Territory.

Heretofore no Civil Airways have been designated in Alaska but the following were designated by the C. A. A. January 27 of this year: Ketchikan, Petersburg, Juneau, Haines; Juneau, Cape Spencer, Yakutat, Yakatuga, Cordova, Portage, Anchorage; Petersburg, Sitka, Cape Spencer; Anchorage, Talkeetna, Summit, Fairbanks; Fairbanks, Tanana, Ruby, Moses Point, Nome; Nome, Kotzebue, Point Barrow; Anchorage, Farwell, McGrath, Nome; Anchorage, Kenai, Iliamna, Naknek; Anchorage, Seward, Kodiak, Chignik, King Cove, Unalaska; Kodiak, Naknek, Goodnews Bay, Bethel, Nome; Fairbanks, Nenana, McGrath, Aniak, Bethel, Boundary, Tenana Crossing, Big Delta; Fairbanks; Cordova, Valdez, Copper Center, Paxson, Big Delta.

Lample and Strawn returned the middle of March, enthusiastic about flying possibilities in Alaska, complimentary about the hospitality of Alaskans, and optimistic about eventual completion of an extensive airport and airways program in the Territory.

Aeronautical Charts

During March the following new editions of aeronautical charts were issued by the United States Coast and Geodetic Survey. Pilots are warned that the previous editions of the same charts are canceled and now are obsolete.

Regional and direction-finding (DF) charts are sold for 40 cents each, while sectional charts are 25 cents each. On orders grossing $10 or more, a 33⅓ percent discount is allowed. Copies of these charts may be obtained from the Coast and Geodetic Survey, Washington, D. C., and from recognized dealers at major cities and airports.

New Editions of Regional Aeronautical Charts

6–M. March 1941. Size, 26 by 38 inches. Located in latitude 38°–44° N., longitude 114°–125° W., an area of about 245,000 square miles. Accumulation of changes since last edition.

10–M. February 1941. Size, 26 by 31 inches. Located in latitude 38°–44° N., longitude 69°–78° W., an area of about 198,000 square miles. Accumulation of changes since the last edition.

Recognized Dealers

The Coast and Geodetic Survey has announced the addition of the following to the list of dealers authorized to sell charts:

Big Spring Municipal Airport, Big Spring, Tex.

Publications

(*Continued from page 103*)

WAR DEPARTMENT, TECHNICAL MANUAL 1–412; aircraft propellers. 107 pages, illustrated. Price 15 cents. Classification number, W 1.35: 1–412.

WAR DEPARTMENT, TECHNICAL MANUAL 1–413; aircraft instruments. 30 pages, illustrated. Price 30 cents. Classification number, W 1.35: 1–413.

WAR DEPARTMENT, TECHNICAL MANUAL 8–305; notes on cardiology in aviation medicine. 204 pages. Price 25 cents. Classification number, W 1.35: 8–305.

STATE DEPARTMENT, EXECUTIVE AGREEMENT SERIES; air transport services, arrangement between the United States of America and Canada, giving effect to article 3 of the air-transport arrangement signed August 18, 1939 (executive agreement series 159). 5 pages. Price 5 cents. Classification number, S 9.8: 186.

ARMY AIR SERVICE LAWS. 64 pages. Price 10 cents. Classification number, Y 1.2: Ai 7/3/941.

When ordering these publications, send remittance by postal money order, express order, coupons, or check to the Superintendent of Documents, Government Printing Office, Washington, D. C. Always give title, issuing office, or classification number when listed.

Weather

(*Continued from page 105*)

Applicants must possess the following qualifications:

1. They must have completed the primary Pilot Training Course in 1939, 1940, or 1941.
2. They must have successfully completed a full 4-year course in a college or university of recognized standing with at least 30 semester hours credit in mathematics through calculus and physics and/or engineering in order to be eligible for postgraduate training. Applicants who have completed 3 years of a 4-year course will be eligible for undergraduate training.
3. They must submit by May 1, 1941, a transcript of their college record, noting in addition thereon the courses being taken but for which credits have not been received.
4. They must be willing, upon successful completion of their course, to accept employment in the Army or Navy Reserves, the Weather Bureau, or other governmental agencies.
5. They must be able to pass the Army or Navy physical examination.

Applications must be on file with the United States Weather Bureau at Washington, D. C., not later than May 1, 1941.

Manufacturing and Production

Commercial Airline Accessory Ruling

Commercial airlines will continue to receive motors, propellers, instruments, spare parts, and material required for maintenance of efficient air transport service, according to William S. Knudsen, Director General, Office of Production Management.

"Recently the question has arisen as to whether the military aircraft program might tend to lower the efficiency which has been and is characteristic of airline service in this country," Mr. Knudsen said.

"It is obvious, of course, that the military airplane program is of paramount importance in the national defense effort. But it is a matter of fundamental policy, determined when civilian aircraft priorities were established, that the airlines shall continue to receive delivery of the motors, propellers, instruments, spare parts and material necessary for maintenance and overhauling operations.

"As for airplanes, during the year 1940, the domestic airlines acquired new planes in a number sufficient to provide for obsolescence, replacements, and regular scheduled operations.

"At the present time, the airlines are at the highest state of efficiency, with the greatest carrying capacity in the history of air transportation in this country, which is now on a scale that has never been approached as to quantity or coverage in any other country in the world.

"The Office of Production Management, the military services, and all other interested departments of the Government are convinced of the necessity of maintaining the existing quality of air transportation.

"Of the air-line pilots and copilots in this country, many of whom are military reservists, less than 3 percent of the pilots or captains, and less than 8 percent of the copilots or first officers, have been called for military service, and trained replacements have been available for every man transferred from civil to military service," he concluded.

February Aero Gas Output Reaches 1,238,000 Barrels

Production of aviation gasoline in February totaled 1,238,000 barrels compared with 1,566,000 barrels produced in January and 1,022,000 barrels in February 1940, according to the Bureau of Mines. Production for the first 2 months of this year was 2,804,000 barrels against 1,974,000 barrels in the like 1940 period.

Exports of aviation gasoline in February were 355,000 barrels against 322,000 barrels in January, while stocks at the ends of the 2 months, respectively, were 6,672,000 and 6,595,000 barrels. Stocks at the end of February 1940 totaled 4,264,000 barrels.

NOTICE

Because of space limitations and the comparatively small number of persons interested, it has been decided to eliminate the usual listing of "Radio Equipment Approved for Scheduled Air Carrier Use" from the JOURNAL. Those who wish to receive this information, however, may obtain the tables by addressing the Publications and Statistics Division, Civil Aeronautics Administration, Washington, D. C.

New Type Approvals

(Approval numbers and dates of assignment in parenthesis)

Type Certificates

Aircraft

Howard, DGA–18, 2 place open land monoplane. Engine, Warner Scarab Series 50. (739, March 18, 1941).

Propellers

Freedman-Burnham, PX–3 propeller with P–303 blades, metal hub and wood blades, 6 feet 8 inches diameter, adjustable pitch, 130 horsepower, 2,600 revolutions per minute (763, March 20, 1941).

Hamilton Standard, 23F propeller with 6175A–O blades, steel hub and aluminum alloy blades, 17 feet 0 inch diameter to 13 feet 6 inches diameter, hydromatic controllable (feathering) pitch, 1,800 horsepower, 993 revolutions per minute (764, March 22, 1941).

Sensenich, 74FA and 74FB, wood, 6 feet 2 inches diameter, 5 feet 2 inches to 4 feet 10 inches pitch, 130 horsepower, 2,600 revolutions per minute (765, March 24, 1931).

Appliances

Switlik, acrobatic safety belt, model AS–1. Approved for one person (140, March 17, 1941).

New Models Added to Old-Type Approvals

(Approval numbers and dates of approval of new models in parenthesis)

Aircraft

Fairchild, 24W41, 4-place closed land monoplane. Engine, Warner Super Scarab Series 50 or 50A (type certificate No. 707, March 25, 1941).

Douglas, DC3B–G202A, 28-place closed land monoplane. Engines, 2 Wright Cyclones GR–1820G–202A (approved type certificate No. 635, March 31, 1941).

Propellers

Freedman-Burnham, PX–2 propeller with P–205 blades, metal hub and wood blades, 6 feet 6 inches diameter, adjustable pitch, 90 horsepower, 2,500 revolutions per minute (type certificate No. 746, March 17, 1941).

Fahlin, D–568, wood, 5 feet 9 inches diameter, 3 feet 3 inches pitch, 80 horsepower, 2,500 revolutions per minute (type certificate No. 681, March 17, 1941).

Sensenich, 102B, wood, 8 feet 6 inches diameter, 5 feet 9 inches pitch, 120 horsepower, 1,550 revolutions per minute (approved type certificate No. 586, March 21, 1941).

Sensenich, 86CS, wood, 7 feet 2 inches diameter, 6 feet 0 inch to 5 feet 8 inches pitch, 145 horsepower, 2,050 revolutions per minute (approved type certificate No. 654, March 24, 1941).

Hamilton Standard, 2B propeller with 6241A–6 blades, steel hub and aluminum alloy blades, 8 feet 6 inches to 6 feet 6 inches diameter, hydromatic controllable pitch, 280 horsepower, 2,200 revolutions per minute (type certificate No. 255, March 24, 1941).

Pilot, A105–F, wood, 6 feet 2½ inches diameter, 3 feet 7 inches pitch, 65 horsepower, 2,200 revolutions per minute (type certificate No. 757, March 25, 1941).

Hamilton Standard, 23E propeller with 6339A–0 blades, steel hub and aluminum alloy blades, 11 feet 6 inches to 10 feet 0 inch diameter, hydromatic controllable (feathering) pitch, 1,095 horsepower, 1,700 revolutions per minute (type certificate No. 603, March 28, 1941).

Hamilton Standard, 23E propeller with 6353A–0 blades, steel hub and aluminum alloy blades, 13 feet 0 inch to 11 feet 0 inch diameter, hydromatic controllable (feathering) pitch, 1,255 horsepower, 1,790 revolutions per minute (type certificate No. 503, March 28, 1941).

Hamilton Standard, 23E propeller with 6379A–0 blades, steel hub and aluminum alloy blades, 10 feet 6 inches to 8 feet 6 inches diameter, hydromatic controllable (feathering) pitch, 1,164 horsepower, 2,100 revolutions per minute (type certificate No. 603, March 28, 1941).

Hamilton Standard, 23E propeller with 6429A–0 blade, steel hub and aluminum alloy blades, 13 feet 0 inch to 11 feet 0 inch diameter, hydromatic controllabe (feathering) pitch, 1,255 horsepower, 1,790 revolutions per minute (type certificate No. 603, March 28, 1941).

Hamilton Standard, 23E propeller with 6359A–0 blades, steel hub and aluminum alloy blades, 14 feet 0 inch to 11 feet 0 inch diameter, hydromatic controllable (feathering) pitch, 1,500 horsepower, 1,435 revolutions per minute (type certificate No. 603, March 28, 1941).

Hamilton Standard, 23E propeller with 6443A–0 blades, steel hub and aluminum alloy blades, 15 feet 0 inch to 11 feet 6 inches diameter, hydromatic controllable (feathering) pitch, 1,350 horsepower, 1,295 revolutions per minute (type certificate No. 603, March 28, 1941).

Hamilton Standard, 23E propeller with 6461A–0 blades, steel hub and amluinum alloy blades, 11 feet 6 inches to 10 feet 0 inch diameter, hydromatic controllable (feathering) pitch, 900 horsepower, 1,520 revolutions per minute (type certificate No. 603, March 28, 1941).

Hamilton Standard, 22D propeller with 6381A–0 blades, steel hub and aluminum alloy blades, 9 feet 6 inches to 7 feet 6 inches diameter, hydromatic controllable (feathering) pitch, 550 horsepower, 2,300 revolutions per minute (type certificate No. 736, March 28, 1941).

Hamilton Standard, 22D propeller with 6383A–O blades, steel hub and aluminum alloy blades, 10 feet 0 inch to 8 feet 0 inch diameter, hydromatic controllable (feathering) pitch, 650 horsepower, 2,300 revolutions per minute (type cerificate No. 736, March 28, 1941).

Hamilton Standard, 22D propeller with 6385A–O blades, steel hub and aluminum alloy blades, 10 feet 9 inches to 9 feet 0 inch diameter, hydromatic controllable (feathering) pitch, 650 horsepower, 2,200 revolutions per minute (type certificate No. 736, March 28, 1941).

Hamilton Standard, 23D propeller with 6381A–O blades, steel hub and aluminum alloy blades, 9 feet 6 inches to 7 feet 6 inches diameter, hydromatic controllable (feathering) pitch, 825 horspower, 2,100 revolutions per minute (type certificate No. 719, March 28, 1941).

Designation of Medical Examiners

During the month of March 1941, the following named physicians were officially authorized to make physical examinations for the Administration:

ARKANSAS.—Dr. Johnnie Porter Price, Price Clinic, Monticello.

CONNECTICUT.—Dr. Irving LaField Nettleton, 775 Washington Avenue, Bridgeport, and Dr. Lloyd Leslie Maurer, 41 Trumbull Street, New Haven.

GEORGIA.—Dr. Walker L. Curtis, 104 North Main Street, College Park, Atlanta.

ILLINOIS.—Dr. Emery Bowers Neff, 1529 Third Avenue, Moline.

NEW MEXICO.—Dr. Allen Clay Gwinn, 701 North Canal, Carlsbad.

NORTH CAROLINA.—Dr. Charles Glenn Mock, 206 Wallace Building, Salisbury.

OHIO.—Dr. Raymond Leroy Shilling, 219 West Main Street, Ashland.

OKLAHOMA.—Dr. Robert C. Sullivan, 306 Gilbert Building, Ardmore.

VIRGINIA.—Dr. Byrd Stuart Leavell, 308 East Market Street, Charlottesville, and Dr. William Linwood Ball, 2920 Park Avenue, Richmond.

WISCONSIN.—Dr. William B. Rydell, Rice Lake Clinic, State Bank Building, Rice Lake.

Airline Medical Examiner

Dr. Walker L. Curtis, 104 North Main Street, College Park, Atlanta, Ga.

The following physicians have changed their addresses during the month, their new addresses being as follows:

Dr. Harold J. Holleran, 30 Court Street, Westfield, Mass.
Dr. William C. Behen, 535 South Capitol Avenue, Lansing, Mich.
Dr. John R. Bierley, Presbyterian Hospital, San Juan, Puerto Rico.

The following physicians are no longer making examinations for the Administration:

Dr. Stanley M. Gates, Monticello, Ark.
Dr. Harry H. Maynard, New Haven, Conn.
Dr. Chester E. Haberlin, Stratford, Conn.
Dr. Francis D. Pierce, Fort Lauderdale, Fla.
Dr. David D. Moncrief, Atlanta, Ga.
Dr. J. G. Gustafson, Moline, Ill.
Dr. Walter L. Tatum, Salisbury, N. C.
Dr. Merle D. Shilling, Ashland, Ohio.
Dr. George E. Johnson, Ardmore, Okla.
Dr. W. Ross Southward, Richmond, Va.
Dr. Roger G. Magruder, Charlottesville, Va.
Dr. Allan S. White, Rice Lake, Wis.

Hamilton Standard, 23D propeller with 6383A–O blades, steel hub and aluminum alloy blades, 10 feet 9 inches to 9 feet 0 inch diameter, hydromatic controllable (feathering) pitch, 850 horsepower, 2,100 revolutions per minute (type certificate No. 719, March 28, 1941).

Hamilton Standard, 23D propeller with 6385A–O blades, steel hub and aluminum alloy blades, 10 feet 9 inch to 9 feet 0 inch diameter, hydromatic controllable (feathering) pitch, 850 horsepower, 2,100 revolutions per minute (type certificate No. 719, March 28, 1941).

Hamilton Standard, 33D propeller with 6459A–O blades, steel hub and aluminum alloy blades, 11 feet 6 inches to 9 feet 6 inches diameter, hydromatic controllable (feathering) pitch, 1,200 horsepower, 1,800 revolutions per minute (type certificate No. 749, March 28, 1941).

Appliances

Wien Alaska, skis, model W–3. Approved static load per ski 2,000 pounds (type certificate No. 92, March 22, 1941).

Shinn, low pressure wheels; models 6C2YB, 6C2YFB, 6C4YB, 6C4YFB, 6C6WB, 6C6WFB, 6C6YB, and 6C6YFB; 6.00–6; aluminum alloy cast. Approved static load per wheel 1,150 pounds (type certificate No. 63, March 27, 1941).

Air Transportation

Transatlantic Station Begins Operation With Bermuda

New hands across the sea between New York and Bermuda went into effect early in April when Station WSY, the Civil Aeronautics Administration's "trans-Atlantic" station at New York, established a schedule for direct communication with the English station on the island.

While each of these stations has been "working" planes on its respective half of the New York-Bermuda route, they have not been exchanging weather information on schedule. Bermuda completes a triangle of stations from which daily flying weather information will be gathered, worked into forecasts by meteorologists and then broadcast for the use of pilots, the other points being WSY and Station VOAC at Newfoundland airport. The forecast is also made up of information received from ships at sea. Messages between stations are exchanged in international code.

The new collaboration was arranged by Eugene Sibley of the Airways Bureau of the C. A. A. in a recent trip to Bermuda.

Board Issues Order on Braniff Mail Pay

In an order and opinion issued by the Civil Aeronautics Board recently, mail-pay rates for the routes operated by Braniff Airways, Inc., were prescribed.

After reviewing the rates for routes 9 and 15, the Board fixed a rate of 17 cents per airplane-mile for route 9 and 23 cents per airplane-mile for route 15. In the same order and opinion, the Board fixed the rate of 28 cents per airplane-mile for route 50, which runs between Houston and San Antonio, Tex., and between Houston and Corpus Christi, Tex. No rate of mail compensation for service over route 50 had heretofore been fixed.

C. A. B. Reports on United Accident

The Civil Aeronautics Board has issued its report on the accident to United Air Lines Transport Corporation's trip 21 near Chicago on December 4, 1940, which resulted in the aircraft being almost completely destroyed and fatal injuries to the operating crew of 3 and 7 of the 13 passengers.

The Board stated that it found that "the probable cause of the accident * * * was the failure of the pilot to exercise that degree of caution and skill required to avert a stall while approaching for a landing on the short northwest runway. A substantial contributing factor to the accident was the error in judgment of Captain Scott (the pilot) in choosing that short runway for his landing," the report added.

Concluding, the Board listed a series of seven recommendations pertaining to the operation of aircraft under adverse weather conditions.

Railway Express Application Dismissed

The Civil Aeronautics Board has dismissed the application of Railway Express Agency for a certificate of public convenience and necessity, stating that the applicant is and was during the "grandfather" period an "air carrier" within the meaning of the Civil Aeronautics Act, but that that provision of the Act authorizing the Board to grant "grandfather" certificates is not applicable to the type of operation carried on by Railway Express Agency.

The Board defined an "air carrier" as one who undertakes, whether directly or indirectly, or by lease or any other arrangement, to engage in the carriage by aircraft of persons or property as a common carrier for compensation or hire, or the carriage of mail by aircraft, in commerce. This definition, in the opinion of the Board, embraces two classes of air carriers—those engaged in direct air carrier operations and those engaged in indirect operations, such as Railway Express.

The Board's decision against granting Railway Express a certificate would, in the absence of an exemption, require the company to cease operations with respect to its air express service, since all air carriers are subject to a basic provision of the Act requiring a certificate of convenience and necessity as a condition to operation; however, the Board stated that it was, until further action of the Board, exempting the applicant from the basic provision of the Act requiring a certificate. "It is in the public interest," the Board said, "temporarily to exempt applicant from the provisions of Section 401 (a)."

The majority opinion was concurred in by Harllee Branch, chairman; Edward P. Warner, vice chairman; and Oswald Ryan, member.

G. Grant Mason, member, dissenting, stated that he would subsequently file an opinion expanding upon his views that Railway Express Agency is not, under the law, an air carrier.

George P. Baker, member, did not participate in this decision.

C. P. T. P.

(*Continued from page 101*)

ruling to apply to all schools in the C. P. T. coming within their jurisdiction.

The primary training course carries a student through a minimum of 35 hours of flight training and 72 hours of ground school; the secondary goes beyond that up to 80 hours of flight and 126 hours' additional ground work. Ground classes are conducted at the schools by a member of the faculty and the flying is taught at a nearby airport by a commercial operator. The course includes the study of Meteorology and Aerodynamics for Pilots, practical air navigation, aircraft engines, and other related subjects.

Albery Appointed to Safety Education Post

The Civil Aeronautics Board has announced the appointment of Freeman Albery as Chief of the Safety Rules and Education Division, to succeed Daniel C. Sayre, who has resigned to reenter the field of journalism.

Mr. Albery, whose home was formerly in Celina, Ohio, began flying in 1913. Educated largely by private tutors, he did special work at Ohio State University, the University of Michigan, and spent a year in the School of Military Aeronautics at the University of Illinois. In 1916, he was test pilot for the Dick Moran Aircraft Corporation of Dayton, Ohio, and from 1917–19 served in the United States Air Corps, resigning with the rank of second lieutenant. After spending several years in the automobile industry, he returned to the Air Corps and was assigned to the Management and Development Section at Bolling Field.

In 1928, he joined the staff of the Aeronautics Branch of the Department of Commerce and remained with the various agencies which succeeded that organization. He served successively as aeronautical inspector, aeronautical school inspector, senior aeronautical inspector, and Assistant Chief of the General Inspection Division. He has been an active pilot since 1913 and brings to his new post a first-hand knowledge of regulatory problems.

Air Reservations

(*Continued from page 109*)

subject to the penalties prescribed by the Civil Aeronautics Act of 1938 (52 Stat. 973).

This order shall take effect ninety days after date hereof.

THE WHITE HOUSE

FRANKLIN D. ROOSEVELT

The President also issued Executive Order No. 8729 on April 2, 1941, correcting Executive Orders Nos. 8680, 8682, and 8683 of February 14, 1941, establishing certain naval defensive sea areas and naval airspace reservations. The full text of the order follows:

The phrase "the territorial waters between the extreme high-water marks in the three-mile marine boundaries" occurring in the first paragraph of Executive Orders Nos. 8680,[1] 8682,[2] and 8683[3] of February 14, 1941, establishing certain naval defensive sea areas and naval airspace reservations, is hereby corrected to read "the territorial waters between the extreme high-water marks and the three-mile marine boundaries."

THE WHITE HOUSE

FRANKLIN D ROOSEVELT

Major Morris Appointed Assistant C. P. T. Director

Maj. John P. Morris, Air Corps Reserve, has been appointed Assistant Director of the Civilian Pilot Training Service, filling the vacancy left by John C. Groves who has become manager of the Washington National Airport.

Major Morris, who comes to Washington from LaGuardia Field, New York, where he was regional superintendent of the Civilian Pilot Training Program, is a native of Harrisburg, Pa., and has been actively connected with aviation since 1917 when he was graduated from the Army Flying School at Ellington Field, Houston, Tex. He served overseas during the first World War as flight instructor at the United States Army base at Issoudun, France. He holds active pilot's certificate No. 457 and has logged more than 6,000 flying hours.

After the war, Major Morris established the first airport in the State of Pennsylvania, Rodgers Field, just outside of Pittsburgh, which he operated from 1921 to 1934, when he was called upon by the State to administer the $17,000,000 W. P. A. airport program. In 1934, Pennsylvania had two municipally owned airports. Under Maj. Morris' direction 33 airports were constructed and linked into a state-wide system which is one of the finest in the country today.

Major Morris is being relieved at LaGuardia Field by his former assistant, Capt. William W. Bachelder, of Harvard, Mass., also an Air Corps Reserve officer, who learned to fly at Kelly Field in 1917. He came to the C. A. A. in 1938 from Fort Devens, Mass., where he had been on active duty with the Civilian Conservation Corps.

CIVIL AERONAUTICS BOARD

OFFICIAL ACTIONS

Abstracts of Opinions, Orders, and Regulations

FOR THE PERIOD APRIL 1–15, 1941

ORDERS

ORDER No. 971: *Penn-Central permitted to withdraw its application.*

The Board on April 1 granted request of Pennsylvania-Central Airlines Corporation to withdraw its application for a certificate of public convenience and necessity authorizing air transportation between Pittsburgh, Pa., and Cincinnati, Ohio.

ORDER No. 972: *Amended order granting Pan American temporary exemption.*

The Board on March 31 granted Pan American Airways Co. (Del.) temporary exemption from the provisions of section 401 (a) of the Civil Aeronautics Act, as amended, insofar as said provisions would otherwise prevent it from engaging in air transportation with respect to persons, property, and mail from Lisbon, Portugal, to New York, N. Y., on westbound flights via the intermediate points Bolama, Portuguese Guinea; Belem, Brazil; Port of Spain, Trinidad; and Hamilton, Bermuda, during the period from March 28, 1941, to May 1, 1941.

ORDER No. 973: *Revoked temporary authorization to continue certain existing interlocking relationships.*

The Board on April 8 revoked temporary approval (Serial No. 613) of the interlocking relationships between Lytle S. Adams and All American Aviation, Inc., and other companies.

ORDER No. 974: *Re petition of Braniff Airways.*

The Board on April 8 issued a supplemental order fixing and determining the fair and reasonable rates of compensation for the transportation of mail by Braniff Airways, Inc., over routes Nos. 9, 15, and 50 (Opinion and order—Docket 1–406(A)–1).

ORDER No. 975: *Revoked student pilot certificate of Robert T. Megetarian.*

The Board on April 11 revoked student pilot certificate No. 210359, held by Robert T. Megetarian, Fresno, Calif., for piloting an aircraft outside an area in the vicinity of the operating base of his instructor and other violations of the Civil Air Regulations.

ORDER No. 976: *Penn-Central granted permission for expeditious use of Pellston Airport.*

The Board on April 12 granted Pennsylvania-Central Airlines Corp., permission to serve Cheboygan, Mich., an intermediate point on route No. 41, through the use of the Pellston Airport, Pellston, Mich., on or about May 1, 1941.

ORDER No. 977: *Pacific Coast Airlines permitted to withdraw application.*

The Board on April 15 permitted Pacific Coast Airlines, Inc., to withdraw its application for a certificate of public convenience and necessity under section 401 of the Civil Aeronautics Act of 1938 as amended.

C. A. B. OPINIONS

Printed copies of Civil Aeronautics Board Opinion No. 7—Docket No. 14–401 (E)–1; PAN AMERICAN AIRWAYS, INC.—CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY, are now available and may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C.

C. A. B. Opinions Nos. 1, 2, 3, 4, 5, 6, 8, and 9 already have been placed on sale. Titles and docket numbers of these opinions were carried in CIVIL AERONAUTICS JOURNAL, volume 2, No. 6, on page 81.

All opinions must be ordered from the Superintendent of Documents. Price for each opinion is 5 cents. Include opinion serial number, docket number, and title when ordering. As new opinions become available, notice will be carried in this section of the JOURNAL.

ORDER No. 978: *Consolidated applications of TWA, Western Air, and United for hearing.*

The Board on April 15 consolidated applications of Transcontinental & Western Air, Inc., Western Air Express Corporation, and United Air Lines Transport Corporation for certificates of public convenience and necessity and assigned proceeding for public hearing.

ORDER No. 979: *Re applications of United, TWA, Eastern and American.*

The Board on April 14 exempted United Air Lines Transport Corporation, Transcontinental & Western Air, Inc., Eastern Air Lines, Inc., and American Airlines, Inc., from the provisions of sections 401 and 404 of the Civil Aeronautics Act of 1938 insofar as said provisions would otherwise require them to serve Newark, N. J., as a coterminal point in air transportation on and after April 15, 1941.

ORDER No. 980: *Trans-Canada granted extension period on familiarization flights between Toronto and New York.*

The Board on April 12 extended the time during which Trans-Canada Air Lines may navigate Canadian-registered aircraft over the territory of the United States on familiarization flights between Toronto, Canada, and New York, N. Y., from April 15, 1941, to April 30, 1941.

ORDER No. 981: *American Airlines granted permission to intervene in application of Eastern.*

The Board on April 15 granted American Airlines, Inc., permission to intervene in the application of Eastern Air Lines, Inc., for a certificate of public convenience and necessity authorizing air transportation between Greenville, S. C., and Memphis, Tenn., via Muscle Shoals, Ala., and Chattanooga, Tenn.

REGULATIONS

(NOTE.—Regulation No. 153 pertains solely to aeronautical experience qualifications for Civilian Pilot Training Program trainees. Because of the limited number of persons interested in this regulation, it will not be carried in this section of the Journal. Interested persons may obtain copies by addressing the Publications and Statistics Division, Civil Aeronautics Administration, Washington, D. C.)

REGULATION No. 154: *The Board on April 4 adopted Amendment No. 105 of the Civil Air Regulations, "Maintenance, Repair and Alterations of Certificated Aircraft and of Aircraft Engines, Propellers and Instruments." The amendment, making changes in Part 18 and Part 01 of the CAR, is as follows:*

Effective June 1, 1941, the Civil Air Regulations are amended by:

1. Amending part 18 to read as follows:

PART 18.—MAINTENANCE, REPAIR, AND ALTERATION OF CERTIFICATED AIRCRAFT AND OF AIRCRAFT ENGINES, PROPELLERS, AND INSTRUMENTS [1]

Sec.
18.1 General.
18.2 Routine maintenance.
18.3 Repairs.
18.4 Alterations.
18.5 Rules and procedures for maintenance, repairs, and alterations.
18.6 Design, techniques, and materials.

18.1 General.

18.10 Definitions.

As used in this part:

(1) "Aircraft engine" means an aircraft engine approved by the Administrator.

(2) "Propeller" means a propeller approved by the Administrator.

(3) "Instrument" means an instrument installed, for other than purely experimental purposes, in a certificated aircraft.

(4) "Manufacturer" means (1) the holder of the type certificate, or approval by the Administrator, for an aircraft, aircraft engine, or propeller, or of the current rights, under a licensing arrangement, to the benefits of such type certificate or approval, or (2) the manufacturer of a part or accessory of a certificated aircraft, or (3) the manufacturer of an instrument which is installed in a certificated aircraft: *Provided*, That such manufacturer shall have in his employ a properly certificated mechanic in direct charge of maintenance, repair, or alteration operations.

18.2 Routine maintenance.—Routine maintenance is defined as simple or minor preservation operations including but not limited to the adjustment of rigging and clearances, and the replacement of small standard parts not involving complex assembly operations.

18.3 Repairs.—A repair is any operation other than routine maintenance which is required to restore an aircraft, aircraft engine, propeller, or instrument to a condition for safe operation, including the mending or replacement of damaged or deteriorated parts.

18.30 Minor repairs.—Minor repairs are elementary repair operations executed in accordance with standard practices and not within the definition of major repairs.

18.31 Major repairs.—Major repairs are complex repair operations of vital importance to the airworthiness of an aircraft including but not limited to—

(*a*) Straightening, plicing, welding, and similar operations when the strength of important structural members might be appreciably affected thereby.

(*b*) Operations requiring complicated or unconventional techniques or equipment.

18.4 Alterations.—An alteration is any appreciable change in the design of an aircraft, aircraft engine, propeller, or instrument.

18.40 Minor alterations.—A minor alteration is—

(*a*) An alteration having no appreciable effect on the weight, balance, structural strength, power-plant operation, flight characteristics or other characteristics affecting the airworthiness of an aircraft; or

(*b*) An alteration for which specific plans and instructions have been approved by the Administrator and which can be executed by means of elementary operations.

18.41 Major alterations.—Major alterations are all alterations not within the definition of minor alterations.

18.5 Rules and procedures for maintenance, repairs and alterations.

18.50 Agencies authorized to perform maintenance, repair, and alteration operations.—Maintenance, repair, and alteration operations shall be performed only by (1) a certificated mechanic having the proper rating or a person working under the direct supervision of such mechanic; or (2) a certificated repair station having the proper rating; or (3) the manufacturer of the aircraft or part of the aircraft to be repaired: *Provided*, That all instrument repairs and alterations and propeller major repairs and major alterations shall be performed only by a certificated repair station having the proper rating or by the instrument or propeller manufacturer.

18.51 Provision for approval of major repairs and major alterations.—No aircraft engine, or propeller which has undergone any major repair or major alteration shall be returned to service until examined, inspected, and approved by a duly authorized representative for the Administrator unless such repair or alteration has been executed in accordance with a manual or specification approved by the Administrator [2] and performed by a certificated repair station of the proper rating or by the manufacturer.

18.52 Flight tests.—When an aircraft or aircraft engine or propeller thereof has undergone a maintenance, minor repair, or minor alteration operation which may have changed its flight characteristics appreciably or substantially affected its operation in flight, or has undergone a major repair or major alteration, such aircraft shall, prior to carrying passengers, be test flown by a pilot having at least 200 solo hours and holding at least a private pilot certificate and appropriate rating for the aircraft to be test flown.

18.53 Recording of repairs and alterations.

18.530. Minor repair and minor alteration log-book entries.—An adequate description of every minor repair or minor alteration of an aircraft, aircraft engine, or propeller shall be entered in the appropriate log book over the signature and certificate number of the mechanic directly in charge of or performing such repair or alteration; and in case a manufacturer or a certificated repair station makes said repair or alteration; the appropriate log book shall also be signed by an authorized official of such agency. The installation of an instrument in an aircraft shall be recorded in the aircraft log book by the agency making the installation.

18.531 Major repair and major alteration records.—A repair agency performing a major repair or major alteration on an aircraft, aircraft engine, or propeller, shall execute such repair and alteration forms as may be prescribed and furnished by the Administrator, and shall deliver a duplicate copy of any such form to the owner of the aircraft and make proper entries on the appropriate page of the Aircraft Operation Record.

18.532 Provision for air carrier records.—Log book and Aircraft Operation Record entries required in this part may be replaced, in the case of repairs or alterations to scheduled air carrier aircraft, by a suitable system of recording repairs, alterations, and signatures of responsible personnel.

18.6 Design, techniques, and materials.—Repairs shall be so executed, and materials of such strength and quality shall be used that the condition of the repaired aircraft, aircraft engine, propeller, or instrument shall be at least equivalent to its original or a properly altered condition in regard to aerodynamic and mechanical function, structural strength, and resistance to vibration and deterioration, and all other qualities affecting airworthiness. Alterations shall be so designed and executed that the altered aircraft, aircraft engine, propeller, or instrument will comply with the airworthiness requirements in effect when the particular model of the aircraft or part of the aircraft was originally certificated and, in addition, with particular provisions of the current airworthiness requirements rendered necessary for safe operation by the alteration.

2. By amending section 01.32 to read as follows:

"*01.32* (Unassigned.)"

3. By striking the last sentence in section 01.341.

4. By amending section 01.35 to read as follows:

"*01.35 Log books.*—The registered owner of a certificated aircraft shall be responsible for the maintenance and, upon request, the presentation to a duly authorized representative of the Administrator or Board, of a log book for the aircraft and a log book for each engine installed therein. Such log book shall be current, accurate, legible, and permanent records. The aircraft log book shall contain an operating history of the aircraft which shall include, but shall not be limited to, flight time of the aircraft, reports of periodic or other inspections, minor repairs, and minor alterations of the aircraft structure and propellers. Each engine log book shall contain an operating history of the aircraft engine to which it pertains, which shall include, but shall not be limited to, the running time of the engine in flight, reports of inspections, minor repairs, and minor alterations of the aircraft engine. Log-book entries may be replaced in the case of scheduled air carrier aircraft, aircraft engines, and propellers, by a suitable system of recording the information required in this section."

REGULATION NO 155: *The Board on April 15 adopted Amendment No. 155 of the Civil Air Regulations, "Amendment of the Air Traffic Rules Governing Flight over Certified High Explosive Danger Areas." The full text of the amendment, which makes changes in two sections of Part 60, of the CAR, follows:*

Effective April 15, 1941, Part 60 of the Civil Air Regulations is amended as follows:

1. By amending section 60.333 to read as follows:

"*60.333 Certified danger areas.* Aircraft taking off or landing over any area certified by the Administrator as a danger area shall be operated in such a manner as to permit at all times an emergency landing outside of such area in the event of complete power failure."

2. By amending section 60.351 (b) to read as follows:

"*60.351* (*b*). An altitude over an area certified by the Administrator as a danger area sufficient to permit at all times an emergency landing outside of such danger area in the event of complete power failure but in no case less than 1,000 feet above the ground: *Provided*, That the restrictions of this subparagraph shall not apply to public aircraft previously authorized by the appropriate governmental agency to make specific flights below such minimums in the public interest."

Safety

(*Continued from page 106*)

Shortly after midnight, Pilot Pierce climbed into an airplane and taxied out about 500 feet in front of a hangar. He then turned the airplane toward the hangar, opened the throttle, took off, and flew into the side of the hangar. The aircraft, a Piper J3F, powered by a 50-horsepower Franklin engine, received major damage. Investigation disclosed that the airport was unlighted and the airplane was not equipped with navigation lights. Upon being questioned after the accident, the pilot stated that he had intended to wreck the aircraft and himself and that he was sorry he didn't do a better job. Pilot Pierce had logged 305½ hours flying experience. Pilot Pierce's private certificate was revoked by the Civil Aeronautics Board on November 8, 1940.

Probable Cause.—Pilot intentionally demolished the airplane by flying into hangar wall.

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[1] Civil Aeronautics Manual 18, which may be secured from the Correspondence Section, Civil Aeronautics Administration, Washington, D. C., describes in detail the operations which the Administration of Civil Aeronautics considers to be routine maintenance, minor and major repairs, and minor and major alterations. It sets forth in detail repair methods, techniques, and practices which the Administrator has found acceptable in the execution of repairs in accordance with these regulations. It also describes forms, scope of technical data, and records prescribed by the Administrator in accordance with this part.

[2] Such manual or specification may, for example, be issued by the manufacturer, a certificated repair station, or by the Administrator. All such manuals or specifications issued by parties other than the Administrator must be approved by him.

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